

ORIGINAL
RED COLOR
STAMP ONLY



FLOWERPOT INSTALLATION PROCEDURE

PHENIX Procedure No. PP-2.5.5.4-03

Revision A

Date: 3-29-99

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approvals

V. Stokes 3/30/99
PHENIX S.E. & I. Date

[Signature] 3-30-99
Cognizant Scientist/ Date
Engineer/Activity Manager

[Signature] 3/31/99
PHENIX QA/Safety Date
Ed. Killian

[Signature] 4/6/99
RHIC ES&H Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First	3/29/1999	n/a	W. Stokes, W. Sondheim, E. Killian, (1 unintelligible)	n/a
RETIRED	Installation completed	3/16/2007	n/a	D. Lynch, R. Pisani, P. Giannotti for PHENIX	D.Lynch

FLOWERPOT Installation Procedure

4.0 Required Equipment

- 4.1 Turnbuckle Mounting Block, P/N 105-0504-207, Detail 2
- 4.2 One M24 Plain Washer (can substitute 1" washer)
- 4.3 One M24 x 4" long, Class 12.9, socket head cap screw
- 4.4 Eight M24 x 3.5" long, Stainless Steel, socket head cap screw
- 4.5 One torque wrench to read a torque of 150 ft./lb.
- 4.6 Two 10' long slings rated 2 Tons each min.
- 4.7 12 ton building crane
- 4.8 Four shackles rated 2 Tons min.
- 4.9 One Turnbuckle, McMaster-Carr P/N3000T61 (or equiv.)
- 4.10 One I-beam trolley, 2 Ton, Granger P/N 2Z617 (or equiv.)
- 4.11 One 2' long sling rated ½ Ton min.
- 4.12 One come-alongs rated ½ Ton min.
- 4.13 Carpenter's bubble level

5.0 Procedure

- 5.1 The FLOWERPOT assembly shall be delivered fully assembled, including the Beam-Beam counter mounting slides, to building 1008.

FLOWERPOT Installation Procedure

1.0 Purpose and Scope

This document shall describe the method of safely installing the FLOWERPOT onto the PHENIX central magnet. It shall describe steps necessary from preparing the lift fixture for the lift on through the installation.

2.0 Responsibilities

Only trained and authorized BNL technicians and/or riggers shall perform the tasks described herein under the supervision of the building 1008 PIC and/or lead rigger.

3.0 Prerequisites

- 3.1 All persons performing tasks described herein shall possess a current BNL Safety Awareness Certificate (SAC).
- 3.2 All persons performing tasks described herein shall possess current training certifications for equipment used per BNL ES&H standard 1.6.0.
- 3.3 All persons performing tasks described herein shall wear proper personal protective equipment per BNL ES&H standard 1.16.0.
- 3.4 All materials handling equipment used shall have been maintained and inspected per BNL ES&H standard 1.6.0.
- 3.5 Only personnel involved with the installation of the Flowerpot shall be permitted in the area of work.

FLOWERPOT Installation Procedure

5.0 Procedure (cont'd)

- 5.2 Align the trolley's lift positioning line to the lift beam's lift positioning line (ref assembly drawing 105-0504-206) and lock the trolley this position with two "C" clamps clamped to the beam's web (one clamp one each side of the trolley).
- 5.3 Raise the lift fixture above the FLOWERPOT assembly rigged as shown on assembly drawing 105-0504-206.
- 5.4 Attach the trolley to the FLOWERPOT swivel shackle using the necessary combinations of 2 ton rated (min.) shackle(s) and/or slings/chains to achieve rigging dimensions shown on assembly drawing 105-0504-206.
- 5.5 Move the lift beam, with the flowerpot attached, into position and attach the turnbuckle with the M24 x 4" long, Class 12 socket head cap screw and 1" plain washer to the Central Magnet as shown on assembly drawing 105-0205-206.
- 5.6 Adjust the turnbuckle and the crane hook height, as appropriate, to maintain the beam level (check with bubble level) and to align the Flowerpot bore to be concentric to the Central Magnet bore.
- 5.7 Anchor the counterweight end of the beam to a track section or a similar structure that will resist a vertical (upward) pull of 200 lbs., caused by the South Flowerpot's 3,000 lb. load in the installation position, with a sling and come-along.
- 5.8 Only after the beam has been leveled and the end restraint has been installed from the beam to a track section (or similar), remove the "C" clamp nearest the turnbuckle, holding the trolley in the lift position. Then, roll the trolley and Flowerpot into the installation position.
- 5.9 Fasten the Flowerpot to the Central Magnet using eight M24 x 3" long screws. Torque screws to 160 ft.lb.

FLOWERPOT Installation Procedure

- 5.6 Release the Flowerpot from the trolley, return the trolley to its original position (with positioning lines aligned) and reapply the C-clamp removed in step 5.8.
- 5.7 Remove the M24 screw, washer and spacer attaching the turnbuckle to the Central Magnet, lay the turnbuckle over towards the slings, and move the lift beam away.

6.0 References

- 6.1 BNL ES&H Standard 1.6.0
- 6.2 BNL ES&H Standard 1.16.0
- 6.3 FLOWERPOT Lifting Beam Drawing 002-0204-206

7.0 Attachments

- 7.1 Drawings
002-0504-206
002-0504-207

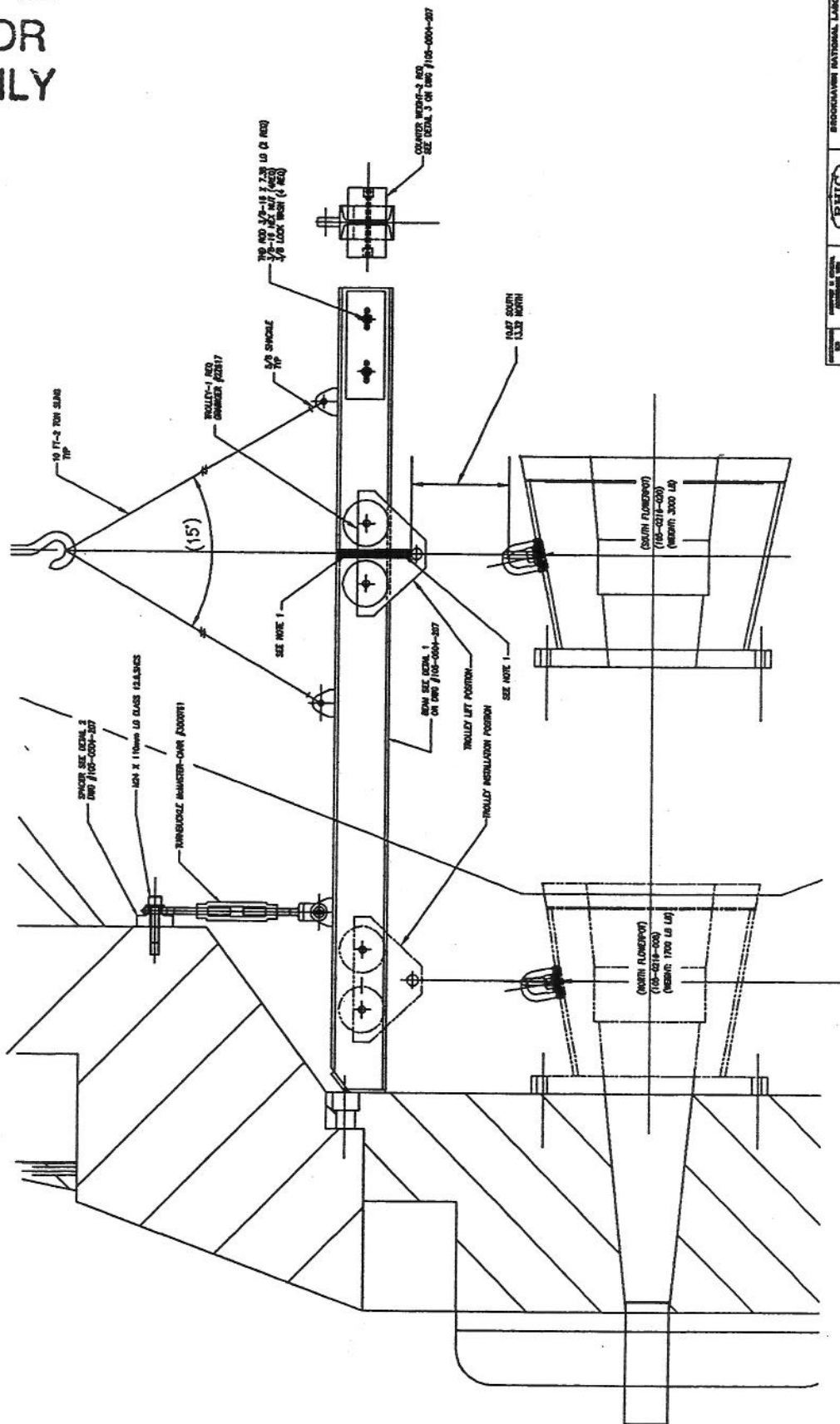
Distribution:

- 1. Sal Marino (file)
- 2. Sal Marino (group)
- 3. Steve Mulhall
- 4. Bill Lenz
- 5. Pete Kroon
- 6. W. Stokes
- 7. Mike Gaffney
- 8. Bill McGahern
- 9. Walt Sondheim

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RED COLOR
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REV	DATE	BY	CHKD	APPD
1	10/1/78	W. J. K.	W. J. K.	W. J. K.
2	10/1/78	W. J. K.	W. J. K.	W. J. K.
3	10/1/78	W. J. K.	W. J. K.	W. J. K.
4	10/1/78	W. J. K.	W. J. K.	W. J. K.
5	10/1/78	W. J. K.	W. J. K.	W. J. K.
6	10/1/78	W. J. K.	W. J. K.	W. J. K.
7	10/1/78	W. J. K.	W. J. K.	W. J. K.
8	10/1/78	W. J. K.	W. J. K.	W. J. K.
9	10/1/78	W. J. K.	W. J. K.	W. J. K.
10	10/1/78	W. J. K.	W. J. K.	W. J. K.

BROOKHAVEN NATIONAL LABORATORY	
PROJECT NO.	105-0504-206 B
PROJECT NAME	FLOWERPOT INSTALLATION TOOL
DATE	10/1/78
BY	W. J. K.
CHKD	W. J. K.
APPD	W. J. K.
REV	1
DATE	10/1/78
BY	W. J. K.
CHKD	W. J. K.
APPD	W. J. K.
REV	2
DATE	10/1/78
BY	W. J. K.
CHKD	W. J. K.
APPD	W. J. K.
REV	3
DATE	10/1/78
BY	W. J. K.
CHKD	W. J. K.
APPD	W. J. K.

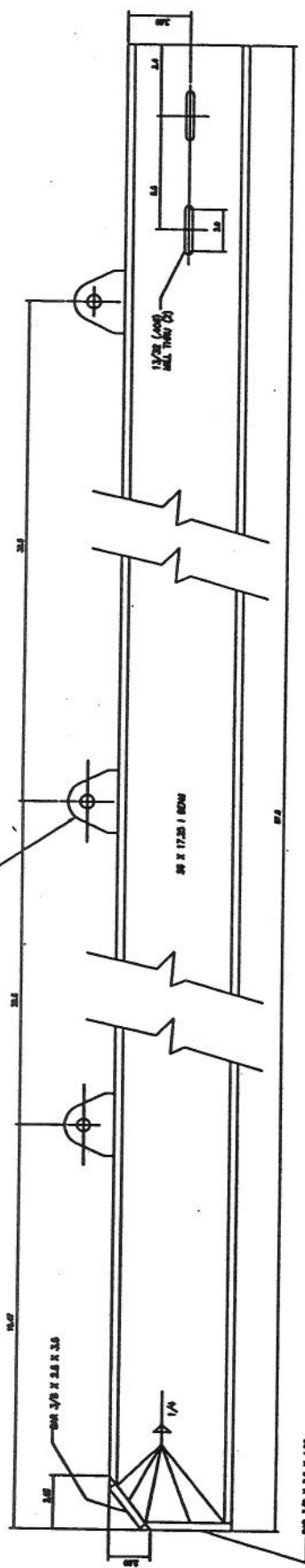
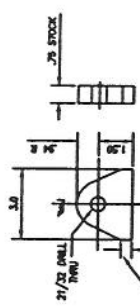


- NOTES:
1. COMPONENTS SETUP
 - a) FRAME ON THE 3/4" TO 1" WIDE (CONTINUED) LINE CORNERS ALONG THE LENGTH OF BOTH SIDES OF THE TOOL. THE CORNERS OF THE LINE SHALL BE A HEAVY VISIBLE COLOR (e.g., YELLOW, ORANGE, RED, OR GREEN).
 - b) FRAME OR BAR A 1/4" TO 1" WIDE (CONTINUED) LINE CORNERS ON THE CORNERS OF THE FRAME. THE CORNERS OF THE LINE SHALL BE A HEAVY VISIBLE COLOR (e.g., YELLOW, ORANGE, RED, OR GREEN).
 - c) FRAME OR BAR A 1/4" TO 1" WIDE (CONTINUED) LINE CORNERS ON THE CORNERS OF THE FRAME. THE CORNERS OF THE LINE SHALL BE A HEAVY VISIBLE COLOR (e.g., YELLOW, ORANGE, RED, OR GREEN).
 - d) FRAME OR BAR A 1/4" TO 1" WIDE (CONTINUED) LINE CORNERS ON THE CORNERS OF THE FRAME. THE CORNERS OF THE LINE SHALL BE A HEAVY VISIBLE COLOR (e.g., YELLOW, ORANGE, RED, OR GREEN).
 2. VERIFICATION
 - a) THE LIFTING DEVICE SHALL BE TESTED, INSPECTED AND MARKED IN ACCORDANCE WITH THE GMP HAS.

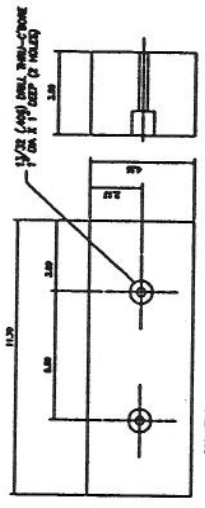
DATE	BY	CHKD	APP'D

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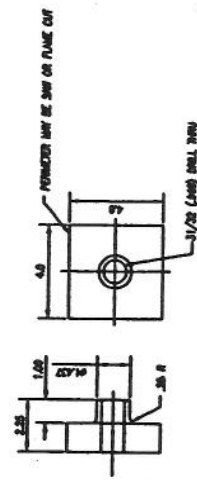
1. MAT'L MUST BE OF 301, 304, 316, 321, 321H, 321L, 321S, 321T, 321V, 321W, 321X, 321Y, 321Z, 321AA, 321AB, 321AC, 321AD, 321AE, 321AF, 321AG, 321AH, 321AI, 321AJ, 321AK, 321AL, 321AM, 321AN, 321AO, 321AP, 321AQ, 321AR, 321AS, 321AT, 321AU, 321AV, 321AW, 321AX, 321AY, 321AZ, 321BA, 321BB, 321BC, 321BD, 321BE, 321BF, 321BG, 321BH, 321BI, 321BJ, 321BK, 321BL, 321BM, 321BN, 321BO, 321BP, 321BQ, 321BR, 321BS, 321BT, 321BU, 321BV, 321BW, 321BX, 321BY, 321BZ, 321CA, 321CB, 321CC, 321CD, 321CE, 321CF, 321CG, 321CH, 321CI, 321CJ, 321CK, 321CL, 321CM, 321CN, 321CO, 321CP, 321CQ, 321CR, 321CS, 321CT, 321CU, 321CV, 321CW, 321CX, 321CY, 321CZ, 321DA, 321DB, 321DC, 321DD, 321DE, 321DF, 321DG, 321DH, 321DI, 321DJ, 321DK, 321DL, 321DM, 321DN, 321DO, 321DP, 321DQ, 321DR, 321DS, 321DT, 321DU, 321DV, 321DW, 321DX, 321DY, 321DZ, 321EA, 321EB, 321EC, 321ED, 321EE, 321EF, 321EG, 321EH, 321EI, 321EJ, 321EK, 321EL, 321EM, 321EN, 321EO, 321EP, 321EQ, 321ER, 321ES, 321ET, 321EU, 321EV, 321EW, 321EX, 321EY, 321EZ, 321FA, 321FB, 321FC, 321FD, 321FE, 321FF, 321FG, 321FH, 321FI, 321FJ, 321FK, 321FL, 321FM, 321FN, 321FO, 321FP, 321FQ, 321FR, 321FS, 321FT, 321FU, 321FV, 321FW, 321FX, 321FY, 321FZ, 321GA, 321GB, 321GC, 321GD, 321GE, 321GF, 321GG, 321GH, 321GI, 321GJ, 321GK, 321GL, 321GM, 321GN, 321GO, 321GP, 321GQ, 321GR, 321GS, 321GT, 321GU, 321GV, 321GW, 321GX, 321GY, 321GZ, 321HA, 321HB, 321HC, 321HD, 321HE, 321HF, 321HG, 321HH, 321HI, 321HJ, 321HK, 321HL, 321HM, 321HN, 321HO, 321HP, 321HQ, 321HR, 321HS, 321HT, 321HU, 321HV, 321HW, 321HX, 321HY, 321HZ, 321IA, 321IB, 321IC, 321ID, 321IE, 321IF, 321IG, 321IH, 321II, 321IJ, 321IK, 321IL, 321IM, 321IN, 321IO, 321IP, 321IQ, 321IR, 321IS, 321IT, 321IU, 321IV, 321IW, 321IX, 321IY, 321IZ, 321JA, 321JB, 321JC, 321JD, 321JE, 321JF, 321JG, 321JH, 321JI, 321JJ, 321JK, 321JL, 321JM, 321JN, 321JO, 321JP, 321JQ, 321JR, 321JS, 321JT, 321JU, 321JV, 321JW, 321JX, 321JY, 321JZ, 321KA, 321KB, 321KC, 321KD, 321KE, 321KF, 321KG, 321KH, 321KI, 321KJ, 321KK, 321KL, 321KM, 321KN, 321KO, 321KP, 321KQ, 321KR, 321KS, 321KT, 321KU, 321KV, 321KW, 321KX, 321KY, 321KZ, 321LA, 321LB, 321LC, 321LD, 321LE, 321LF, 321LG, 321LH, 321LI, 321LJ, 321LK, 321LL, 321LM, 321LN, 321LO, 321LP, 321LQ, 321LR, 321LS, 321LT, 321LU, 321LV, 321LW, 321LX, 321LY, 321LZ, 321MA, 321MB, 321MC, 321MD, 321ME, 321MF, 321MG, 321MH, 321MI, 321MJ, 321MK, 321ML, 321MM, 321MN, 321MO, 321MP, 321MQ, 321MR, 321MS, 321MT, 321MU, 321MV, 321MW, 321MX, 321MY, 321MZ, 321NA, 321NB, 321NC, 321ND, 321NE, 321NF, 321NG, 321NH, 321NI, 321NJ, 321NK, 321NL, 321NM, 321NN, 321NO, 321NP, 321NQ, 321NR, 321NS, 321NT, 321NU, 321NV, 321NW, 321NX, 321NY, 321NZ, 321OA, 321OB, 321OC, 321OD, 321OE, 321OF, 321OG, 321OH, 321OI, 321OJ, 321OK, 321OL, 321OM, 321ON, 321OO, 321OP, 321OQ, 321OR, 321OS, 321OT, 321OU, 321OV, 321OW, 321OX, 321OY, 321OZ, 321PA, 321PB, 321PC, 321PD, 321PE, 321PF, 321PG, 321PH, 321PI, 321PJ, 321PK, 321PL, 321PM, 321PN, 321PO, 321PP, 321PQ, 321PR, 321PS, 321PT, 321PU, 321PV, 321PW, 321PX, 321PY, 321PZ, 321QA, 321QB, 321QC, 321QD, 321QE, 321QF, 321QG, 321QH, 321QI, 321QJ, 321QK, 321QL, 321QM, 321QN, 321QO, 321QP, 321QQ, 321QR, 321QS, 321QT, 321QU, 321QV, 321QW, 321QX, 321QY, 321QZ, 321RA, 321RB, 321RC, 321RD, 321RE, 321RF, 321RG, 321RH, 321RI, 321RJ, 321RK, 321RL, 321RM, 321RN, 321RO, 321RP, 321RQ, 321RR, 321RS, 321RT, 321RU, 321RV, 321RW, 321RX, 321RY, 321RZ, 321SA, 321SB, 321SC, 321SD, 321SE, 321SF, 321SG, 321SH, 321SI, 321SJ, 321SK, 321SL, 321SM, 321SN, 321SO, 321SP, 321SQ, 321SR, 321SS, 321ST, 321SU, 321SV, 321SW, 321SX, 321SY, 321SZ, 321TA, 321TB, 321TC, 321TD, 321TE, 321TF, 321TG, 321TH, 321TI, 321TJ, 321TK, 321TL, 321TM, 321TN, 321TO, 321TP, 321TQ, 321TR, 321TS, 321TT, 321TU, 321TV, 321TW, 321TX, 321TY, 321TZ, 321UA, 321UB, 321UC, 321UD, 321UE, 321UF, 321UG, 321UH, 321UI, 321UJ, 321UK, 321UL, 321UM, 321UN, 321UO, 321UP, 321UQ, 321UR, 321US, 321UT, 321UU, 321UV, 321UW, 321UX, 321UY, 321UZ, 321VA, 321VB, 321VC, 321VD, 321VE, 321VF, 321VG, 321VH, 321VI, 321VJ, 321VK, 321VL, 321VM, 321VN, 321VO, 321VP, 321VQ, 321VR, 321VS, 321VT, 321VU, 321VV, 321VW, 321VX, 321VY, 321VZ, 321WA, 321WB, 321WC, 321WD, 321WE, 321WF, 321WG, 321WH, 321WI, 321WJ, 321WK, 321WL, 321WM, 321WN, 321WO, 321WP, 321WQ, 321WR, 321WS, 321WT, 321WU, 321WV, 321WW, 321WX, 321WY, 321WZ, 321XA, 321XB, 321XC, 321XD, 321XE, 321XF, 321XG, 321XH, 321XI, 321XJ, 321XK, 321XL, 321XM, 321XN, 321XO, 321XP, 321XQ, 321XR, 321XS, 321XT, 321XU, 321XV, 321XW, 321XX, 321XY, 321XZ, 321YA, 321YB, 321YC, 321YD, 321YE, 321YF, 321YG, 321YH, 321YI, 321YJ, 321YK, 321YL, 321YM, 321YN, 321YO, 321YP, 321YQ, 321YR, 321YS, 321YT, 321YU, 321YV, 321YW, 321YX, 321YY, 321YZ, 321ZA, 321ZB, 321ZC, 321ZD, 321ZE, 321ZF, 321ZG, 321ZH, 321ZI, 321ZJ, 321ZK, 321ZL, 321ZM, 321ZN, 321ZO, 321ZP, 321ZQ, 321ZR, 321ZS, 321ZT, 321ZU, 321ZV, 321ZW, 321ZX, 321ZY, 321ZZ
2. WELD & INSPECT
3. WELDERS MUST BE QUALIFIED PER AWS D11.1 OR BETTER
4. LABEL AS PER RHC DPM 10.6 SECTION 5.5



SECTION 1
FLOWPOT
MATERIAL
MATERIAL
MATERIAL
(MATERIAL)



DETAIL 2
FLOWPOT
MATERIAL
MATERIAL
MATERIAL
(MATERIAL)



DETAIL 3
FLOWPOT
MATERIAL
MATERIAL
MATERIAL
(MATERIAL)

DATE	BY	CHKD	APP'D

DATE	BY	CHKD	APP'D